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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

June 1, 2007

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Listing of Claims:

The only independent claim, claim 1, is presented below.

1. (Previously presented) A separation tray suitable for being horizontally mounted in a normally vertical column, which separation tray comprises a normally horizontal upper wall and a normally horizontal lower wall defining an inner space between them; a means for admitting fluid to the inner space; a means for removing liquid from the inner space; a means for removing gas from the inner space; a plurality of primary separation devices within the inner space, for separating fluid into primary gas and liquid-enriched fluid, which primary separation devices comprise:

a normally vertical tubular conduit having at its lower end an inlet for fluid, which inlet is in fluid communication with the means for admitting fluid, and having at its upper end an outlet for primary gas, from which outlet an outlet conduit extends to a primary gas outlet opening in the upper wall, which primary gas outlet opening forms part of the means for removing gas;

a swirl-imparting means arranged in the conduit between the inlet for fluid and the outlet for primary gas, so as to cause, during normal operation, the formation of a layer of liquid-enriched fluid in an annular region adjacent the inner surface of the conduit downstream of the swirl-imparting means, which liquid-enriched fluid comprises secondary gas;

and which separation tray further comprises a means for removing and guiding liquid-enriched fluid from each of the primary separation devices to a secondary separation means for removing entrained liquid from secondary gas,

wherein the secondary separation means for removing entrained liquid from secondary gas is formed by the free inner space between the upper and lower walls, which free inner space has in its lower part an outlet for liquid in fluid communication with the means for removing liquid and in its upper part an outlet for secondary gas, which extends to a secondary gas outlet opening in the upper wall, which secondary gas outlet opening is separate from the primary gas outlet opening and forms part of the means for removing gas, and wherein the means for removing and guiding liquid-enriched fluid surrounds each primary separation device and is arranged to admit all liquid-enriched fluid downwardly into the free inner space;

wherein the means for removing and guiding liquid-enriched fluid is arranged to admit all of the liquid-enriched fluid to the free inner space at a position within 30% of the spacing between upper and lower walls, counted from the lower wall.

REMARKS

Claim Rejections - 35 U.S.C. § 103

In the Office Action, the Examiner rejected Claims 1 and 5 under 35 U.S.C. § 103(a) as being unpatentable over DE 38 32 420 (Fig. 1)(Artemov). Applicant respectfully traverses the rejection.

Artemov teaches wet gas 2 entering vanes 11 and into lower tube 8. Dry gas 4 goes into upper tube 9, with wet gas going through space 10, and into "offene Kappe" 14 (translated as open cap 14), then into separation chamber 3. Liquids go to liquid outlet 5 at the bottom, with dry gas going to orifice 13 at the top.

Artemov does not teach or suggest the desirability of open cap 14 extending to a position within 30% of the spacing between upper and lower walls, counted from the lower wall. Artemov's open cap 14 is located at the mid-space between upper perforated plate 7 and lower perforated plate 6.

Applicant respectfully submits that the advantage of the invention in Claim 1 over Artemov may include one or more of the following: liquid can not reach the secondary gas outlets on a direct trajectory, maximized use of free inner space, increased time available for separation of entrained liquid, and/or longer travel distance for secondary gas. These and other advantages are discussed in paragraphs 21 and 22 of the Patent Application Publication.

In order for the Examiner to establish a prima facie case of obviousness, he must establish a motivation or suggestion to modify or combine the references, a reasonable expectation of success, and the claimed combination and reasonable expectation of success must be found in the prior art. (MPEP §2142).

Here the Examiner stated that Artemov's open cap 14 is located at 37.5% of the spacing between the upper and lower walls counted from the lower wall. Then the Examiner stated that the length of a return skirt is a well known parameter to those skilled in the art and can be modified according to the desired results. Applicant respectfully requests that the Examiner support his personal knowledge of the state of the art with an affidavit pursuant to 37 CFR 1.104(d)(2).

In addition, Artemov does not teach or suggest any return skirt length, nor a range which could be modified by one of skill in the art.

The Examiner has failed to establish a prima facie case of obviousness as there is no motivation or suggestion to modify the open cap 14 of Artemov into a return skirt ending at a position within 30% of the spacing between upper and lower walls, counted from the lower wall, there is no reasonable expectation of success, and the range within 30% is not taught or suggested by Artemov.

Applicant respectfully submits that Claim 1 is patentable over Artemov for at least the reasons stated above. Applicant respectfully submits that Claim 5 depends from Claim 1 and is allowable for at least the same reasons.

In the Office Action, the Examiner rejected Claims 3, 4, and 6-8 under 35 U.S.C. §103(a) as being unpatentable over DE 38 32 420 (Fig. 1)(Artemov) in view of EPO 0 048 508 (Schuurmans). Applicant respectfully traverses the rejection.

Applicant respectfully submits that Schuurmans does not remedy the defects of Artemov discussed above. Schuurmans also teaches skirts 72 located at the mid-space of the free inner space, and not within 30% of the spacing between upper and lower walls, counted from the lower wall (Schuurmans, Figs. 6 and 7).

In addition, Applicant respectfully submits that there is no motivation or suggestion to combine the teachings of Schuurmans with Artemov, as Schuurmans teaches secondary gas outlets 69 within skirts 72, which would allow wet gas from separating chamber 63 to “short circuit” directly to secondary gas outlet 69.

In the Office Action, the Examiner rejected Claims 9-14 under 35 U.S.C. §103(a) as being unpatentable over DE 38 32 420 (Fig. 1)(Artemov) in view of EPO 0 048 508 (Schuurmans), further in view of U.S. Patent No. 5,626,799 (Sheinman). Applicant respectfully traverses the rejection.

Applicant respectfully submits that Sheinman does not remedy the defects of Schuurmans and Artemov discussed above. Sheinman also does not teach a skirt at all.

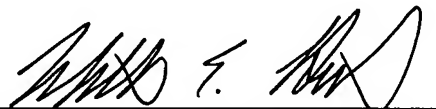
In addition, Applicant respectfully submits that there is no motivation or suggestion to combine the teachings of Sheinman with Schuurmans and Artemov, as Sheinman is non-analogous art.

For the reasons discussed above and in view of the amendments, all of the pending claims of the present application are believed to be patentable over the cited references. Accordingly, it is respectfully requested that a Notice of Allowance be issued in this case.

Respectfully submitted,

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By



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